CLAIMS

1. (Previously presented) A method of controlling packet-switched calls, comprising the steps of:

terminating a plurality of call signaling connections, each corresponding to one of a plurality of packet-switched calls, at a packet-switched signaling gateway, where each call signaling connection is packet-switched;

communicating, over a number of sessions smaller than the plurality of call signaling connections, the signaling content of the call signaling connections from the signaling gateway to a primary media gateway controller; and

routing a plurality of packet-switched bearer streams, each corresponding to one of the packet-switched calls, to a media endpoint controlled by the primary media gateway controller.

2. (Original) The method of claim 1, wherein the smaller number of sessions is one session.

3. (Previously presented) The method of claim 1, further comprising the step of interpreting, at the primary media gateway controller, the signaling content.

4. (Previously presented) The method of claim 3, further comprising the step of issuing gateway control commands, from the primary media gateway controller to the media endpoint, based on the signaling content.

5. (Previously presented) The method of claim 1, wherein the primary media gateway controller similarly controls multiple media endpoints and similarly communicates with multiple signaling gateways.

6. (Original) The method of claim 5, wherein the routing step routes some of the packet-switched bearer streams to one of the multiple media endpoints, and some others of the packet-switched bearer streams to another of the multiple media endpoints.

7. (Original) The method of claim 1, wherein the media endpoint is a media proxy.

8. (Previously presented) The method of claim 7, further comprising the step of forwarding one of the packet-switched bearer streams from the media proxy to a media gateway also controlled by the primary media gateway controller.

9. (Previously presented) A method of controlling packet-switched calls, comprising the steps of:

terminating a plurality of call signaling connections, each corresponding to one of a plurality of packet-switched calls, at a packet-switched signaling gateway, where each call signaling connection is packet-switched;

communicating, over a number of sessions smaller than the plurality of call signaling connections, the signaling content of the call signaling connections from the signaling gateway to a primary media gateway controller;

routing a plurality of packet-switched bearer streams, each corresponding to one of the packet-switched calls, to a media endpoint controlled by the primary media gateway controller, wherein the media endpoint is a media proxy;

forwarding one of the packet-switched bearer streams from the media proxy to a media gateway also controlled by the primary media gateway controller; and

prior to the forwarding step, modifying the format of the forwarded packet-switched bearer stream within the media proxy.

10. (Original) The method of claim 1, wherein the media endpoint is a media gateway.

11. (Original) The method of claim 1, wherein the signaling gateway and the media endpoint co-reside on the same platform.

12. (Currently Amended) A method of controlling packet-switched calls, comprising the steps of:

terminating a plurality of call signaling connections, each corresponding to one of a plurality of packet-switched calls, at a packet-switched signaling gateway, where each call signaling connection is packet-switched;

communicating, over a number of sessions smaller than the plurality of call signaling connections, the signaling content of the call signaling connections from the signaling gateway to a primary media gateway controller;

routing a plurality of packet-switched bearer streams, each corresponding to one of the packet-switched calls, to a media endpoint controlled by the primary media gateway controller;

multiplexing, at the primary media gateway controller, outbound signaling content destined for the packet-switched call signaling connections terminated by the signaling gateway, onto the smaller plurality of sessions with the signaling gateway;

parsing, at the signaling gateway, the outbound signaling content into protocol data units identifiable with their associated call-signaling connections; and

transmitting each protocol data unit over its associated call-signaling connection, using ~~the~~ a native transport protocol appropriate to that signaling connection.

13. (Previously presented) The method of claim 12, wherein the native transport protocol utilized for the call-signaling connections comprises TCP.

14. (Previously presented) The method of claim 12, wherein the native transport protocol utilized for the call-signaling connections comprises UDP.

15. (Currently Amended) The method of claim 1, wherein ~~the~~ a native transport protocol utilized for the call-signaling connections comprises TCP.

16. (Currently Amended) The method of claim 1, wherein ~~the~~ a native transport protocol utilized for the call-signaling connections comprises UDP.

17. (Previously presented) The method of claim 1, further comprising the steps of:

periodically saving call state information for the calls served by the primary media gateway controller to a failover media gateway controller; and

upon the occurrence of a failure at the primary media gateway controller, failing over to the failover media gateway controller both control of the media endpoint and communication with the signaling gateway.

18. (Previously presented) The method of claim 1, wherein one of the packet-switched bearer streams is an audio stream.

19. (Previously presented) The method of claim 18, further comprising the step of routing a packet-switched video stream associated with the audio stream to the media endpoint controlled by the primary media gateway controller.

20. (Canceled)

21. (Previously presented) The packet-switched signaling gateway of claim 27, wherein the packet-switched call signaling connections include H.225 Q.931 connections, H.225 RAS connections, and H.245 connections.

22. (Previously presented) The signaling gateway of claim 27, wherein the smaller number is one.

23. (Previously presented) The signaling gateway of claim 27, wherein the transport protocol used by the terminating means for the plurality of packet-switched call signaling connections comprises TCP.

24. (Original) The signaling gateway of claim 23, wherein the transport protocol used by the multiplexing means for the single session is selected from the group of protocols consisting of TCP, SCTP, and RUDP.

25. (Previously presented) The signaling gateway of claim 27, wherein the transport protocol used by the terminating means for each of the plurality of packet-switched call signaling connections is selected from the group of protocols consisting of TCP, SCTP, and RUDP.

26. (Previously presented) The signaling gateway of claim 27, wherein the transport protocol used by the multiplexing means for the single session is selected from the group of protocols consisting of TCP and RUDP.

27. (Previously presented) A packet-switched signaling gateway, comprising:

means for terminating a plurality of call signaling connections, each corresponding to one of a plurality of packet-switched calls, where each call signaling connection is packet-switched;

means for multiplexing signaling content received over the plurality of call signaling connections onto a smaller number of packet-switched sessions for transmission to a media gateway controller;

means for receiving the multiplexed signaling content from the media gateway controller; and

means for parsing the multiplexed signaling content into multiple protocol data units and transmitting each protocol data unit over its appropriate packet-switched call signaling connection.

28. (Previously presented) The signaling gateway of claim 27, further comprising:

means for terminating a packet-switched bearer stream associated with one of the packet-switched call signaling connections.

29. (Previously presented) The signaling gateway of claim 28, further comprising:

means for receiving gateway control signaling from the media gateway controller; and

control means responsive to received gateway control signaling.

30. (Canceled)

31. (Previously presented) A media gateway controller comprising:

means for receiving multiplexed signaling content from a signaling gateway and parsing this content into signaling content associated with identifiable call signaling connections, each corresponding to one of a plurality of packet-switched calls, where each call signaling connection is packet-switched;

means for sending, for the signaling content associated with one of the identifiable call signaling connections, gateway control signaling responsive to that signaling content, to a media termination endpoint handling a packet-switched bearer stream associated with that identifiable call-signaling connection; and

multiplexing means for assembling outbound signaling content—destined for the packet-switched call signaling connections terminated by the signaling gateway—onto a number of sessions smaller than a number of terminated call signaling connections for transmission to the signaling gateway.

32. (Canceled)

33. (Previously presented) The packet-switched communication system of claim 37, further comprising a failover media gateway controller that periodically receives call state information from one of the primary media gateway controllers, and takes over communication with a signaling gateway or media endpoint upon failure of that primary media gateway controller with respect to that gateway or endpoint.

34. (Previously presented) The packet-switched communication system of claim 37, further comprising a set of one or more failover media gateway controllers that periodically receive call state information from the set of primary media gateway controllers, and takes over communication with a signaling gateway or media endpoint upon failure of one of the primary media gateway controllers with respect to that gateway or endpoint.

35. (Previously presented) The packet-switched communication system of claim 37, wherein at least one of the signaling gateways co-resides with one of the media endpoints on a common platform.

36. (Previously presented) The packet-switched communication system of claim 37, wherein the packet-switched call signaling connections terminated by at least one of the signaling gateways comprise at least one TCP connection.

37. (Previously presented) A packet-switched communication system comprising:

a plurality of signaling gateways, each signaling gateway capable of terminating a plurality of call signaling connections—each connection corresponding to one of a plurality of packet-switched calls—and multiplexing the signaling content of the call signaling connections onto a number of sessions smaller than a number of terminated call signaling connections, where each call signaling connection is packet-switched;

a plurality of media endpoints, which comprises both media gateways and media proxies, with each endpoint capable of terminating a plurality of packet-switched bearer streams;

a set of one or more primary media gateway controllers, the set of primary media gateway controllers in communication with each of the signaling gateways and each of the media endpoints, the media gateway controllers using multiplexed signaling content received from the plurality of signaling gateways to control operation of the media endpoints.

38. (Previously presented) A method of controlling packet-switched calls, comprising the steps of:

terminating a plurality of call signaling connections, each corresponding to one of a plurality of packet-switched calls, at a packet-switched signaling gateway, where each call signaling connection is packet-switched;

communicating, over a number of sessions smaller than the plurality of call signaling connections, the signaling content of the call signaling connections from the signaling gateway to a primary media gateway controller;

routing a plurality of packet-switched bearer streams, each corresponding to one of the packet-switched calls, to a media endpoint controlled by the primary media gateway controller; and

wherein an H.323 backhaul channel is used when communicating the signal content of the call signaling connections from the signaling gateway to the primary media gateway controller.

39. (Previously presented) The method of claim 38, wherein the smaller number of sessions is one session.

40. (Previously presented) The method of claim 38, further comprising the step of interpreting, at the primary media gateway controller, the signaling content.

41. (Previously presented) The method of claim 40, further comprising the step of issuing gateway control commands, from the primary media gateway controller to the media endpoint, based on the signaling content.

42. (Previously presented) The method of claim 38, wherein the primary media gateway controller similarly controls multiple media endpoints and similarly communicates with multiple signaling gateways.

43. (Previously presented) The method of claim 42, wherein the routing step routes some of the packet-switched bearer streams to one of the multiple media endpoints, and some others of the packet-switched bearer streams to another of the multiple media endpoints.

44. (Previously presented) The method of claim 38, wherein the media endpoint is a media proxy.

45. (Previously presented) The method of claim 44, further comprising the step of forwarding one of the packet-switched bearer streams from the media proxy to a media gateway also controlled by the primary media gateway controller.

46. (Previously presented) A method of controlling packet-switched calls, comprising the steps of:

terminating a plurality of call signaling connections, each corresponding to one of a plurality of packet-switched calls, at a packet-switched signaling gateway, where each call signaling connection is packet-switched;

communicating, over a number of sessions smaller than the plurality of call signaling connections, the signaling content of the call signaling connections from the signaling gateway to a primary media gateway controller;

routing a plurality of packet-switched bearer streams, each corresponding to one of the packet-switched calls, to a media endpoint controlled by the primary media gateway controller, wherein the media endpoint is a media proxy;

forwarding one of the packet-switched bearer streams from the media proxy to a media gateway also controlled by the primary media gateway controller; and

prior to the forwarding step, modifying the format of the forwarded packet-switched bearer stream within the media proxy;

wherein an H.323 backhaul channel is used when communicating the signal content of the call signaling connections from the signaling gateway to the primary media gateway controller.

47. (Previously presented) The method of claim 38, wherein the media endpoint is a media gateway.

48. (Previously presented) The method of claim 38, wherein the signaling gateway and the media endpoint co-reside on the same platform.

49. (Currently Amended) A method of controlling packet-switched calls, comprising the steps of:

terminating a plurality of call signaling connections, each corresponding to one of a plurality of packet-switched calls, at a packet-switched signaling gateway, where each call signaling connection is packet-switched;

communicating, over a number of sessions smaller than the plurality of call signaling connections, the signaling content of the call signaling connections from the signaling gateway to a primary media gateway controller;

routing a plurality of packet-switched bearer streams, each corresponding to one of the packet-switched calls, to a media endpoint controlled by the primary media gateway controller;

multiplexing, at the primary media gateway controller, outbound signaling content destined for the packet-switched call signaling connections terminated by the signaling gateway, onto a smaller plurality of sessions with the signaling gateway;

parsing, at the signaling gateway, the outbound signaling content into protocol data units identifiable with their associated call-signaling connections; and

transmitting each protocol data unit over its associated call-signaling connection, using ~~the~~ a native transport protocol appropriate to that signaling connection;

wherein an H.323 backhaul channel is used when communicating the signal content of the call signaling connections from the signaling gateway to the primary media gateway controller.

50. (Previously presented) The method of claim 49, wherein the native transport protocol utilized for the call-signaling connections comprises TCP.

51. (Previously presented) The method of claim 49, wherein the native transport protocol utilized for the call-signaling connections comprises UDP.

52. (Currently Amended) The method of claim 38, wherein ~~the~~ a native transport protocol utilized for the call-signaling connections comprises TCP.

53. (Currently Amended) The method of claim 38, wherein ~~the~~ a native transport protocol utilized for the call-signaling connections comprises UDP.

54. (Previously presented) The method of claim 38, further comprising the steps of:

periodically saving call state information for the calls served by the primary media gateway controller to a failover media gateway controller; and

upon the occurrence of a failure at the primary media gateway controller, failing over to the failover media gateway controller both control of the media endpoint and communication with the signaling gateway.

55. (Previously presented) The method of claim 38, wherein one of the packet-switched bearer streams is an audio stream.

56. (Previously presented) The method of claim 55, further comprising the step of routing a packet-switched video stream associated with the audio stream to the media endpoint controlled by the primary media gateway controller.

57. (Previously presented) A packet-switched signaling gateway comprising:

means for terminating a plurality of call signaling connections, each corresponding to one of a plurality of packet-switched calls, where each call signaling connection is packet-switched; and

means for multiplexing signaling content received over the plurality of call signaling connections onto a smaller number of packet-switched sessions for transmission over an H.323 backhaul channel to a media gateway controller.

58. (Previously presented) The packet-switched signaling gateway of claim 57, wherein the packet-switched call signaling connections include H.225 Q.931 connections, H.225 RAS connections, and H.245 connections.

59. (Previously presented) The signaling gateway of claim 57, wherein the smaller number is one.

60. (Previously presented) The signaling gateway of claim 57, wherein the transport protocol used by the terminating means for the plurality of packet-switched call signaling connections comprises TCP.

61. (Previously presented) The signaling gateway of claim 60, wherein the transport protocol used by the multiplexing means for the single session is selected from the group of protocols consisting of TCP, SCTP, and RUDP.

62. (Previously presented) The signaling gateway of claim 57, wherein the transport protocol used by the terminating means for each of the plurality of packet-switched call signaling connections is selected from the group of protocols consisting of TCP, SCTP, and RUDP.

63. (Previously presented) The signaling gateway of claim 57, wherein the transport protocol used by the multiplexing means for the single session is selected from the group of protocols consisting of TCP and RUDP.

64. (Previously presented) A packet-switched signaling gateway comprising:

means for terminating a plurality of call signaling connections, each corresponding to one of a plurality of packet-switched calls, where each call signaling connection is packet-switched;

means for multiplexing signaling content received over the plurality of call signaling connections onto a smaller number of packet-switched sessions for transmission over an H.323 backhaul channel to a media gateway controller;

means for receiving multiplexed signaling content from the media gateway controller; and

means for parsing the multiplexed signaling content into multiple protocol data units and transmitting each protocol data unit over its appropriate packet-switched call signaling connection.

65. (Previously presented) The signaling gateway of claim 57, further comprising:

means for terminating a packet-switched bearer stream associated with one of the packet-switched call signaling connections.

66. (Previously presented) The signaling gateway of claim 65, further comprising:

means for receiving gateway control signaling from the media gateway controller; and

control means responsive to received gateway control signaling.

67. (Canceled)

68. (Previously presented) A media gateway controller comprising:

means for receiving multiplexed signaling content over an H.323 backhaul channel from a signaling gateway and parsing this content into signaling content associated with identifiable call signaling connections, each corresponding to one of a plurality of packet-switched calls, where each call signaling connection is packet-switched; and

means for sending, for the signaling content associated with one of the identifiable call signaling connections, gateway control signaling responsive to that signaling content, to a media termination endpoint handling a packet-switched bearer stream associated with that identifiable call-signaling connection;

multiplexing means for assembling outbound signaling content—destined for the packet-switched call signaling connections terminated by the signaling gateway—onto a number of sessions smaller than a number of terminated call signaling connections for transmission to the signaling gateway.

69. (Canceled)

70. (Previously presented) The packet-switched communication system of claim 74, further comprising a failover media gateway controller that periodically receives call state information from one of the primary media gateway controllers, and takes over communication with a signaling gateway or media endpoint upon failure of that primary media gateway controller with respect to that gateway or endpoint.

71. (Previously presented) The packet-switched communication system of claim 74, further comprising a set of one or more failover media gateway controllers that periodically receive call state information from the set of primary media gateway controllers, and takes over communication with a signaling gateway or media endpoint upon failure of one of the primary media gateway controllers with respect to that gateway or endpoint.

72. (Previously presented) The packet-switched communication system of claim 74, wherein at least one of the signaling gateways co-resides with one of the media endpoints on a common platform.

73. (Previously presented) The packet-switched communication system of claim 74, wherein the packet-switched call signaling connections terminated by at least one of the signaling gateways comprise at least one TCP connection.

74. (Previously presented) A packet-switched communication system comprising:

a plurality of signaling gateways, each signaling gateway capable of terminating a plurality of call signaling connections—each connection corresponding to one of a plurality of packet-switched calls—and multiplexing the signaling content of the call signaling connections onto a number of sessions smaller than a number of terminated call signaling connections, where each call signaling connection is packet-switched;

a plurality of media endpoints, which comprises both media gateways and media proxies, with each endpoint capable of terminating a plurality of packet-switched bearer streams;

a set of one or more primary media gateway controllers, the set of primary media gateway controllers in communication with each of the signaling gateways through H.323 backhaul channels and each of the media endpoints, the primary media gateway controllers using multiplexed signaling content received from the plurality of signaling gateways to control operation of the media endpoints.

STATEMENT OF COMMON OWNERSHIP

The present application and Berg et al. (U.S. Patent 6,674,713) were, at the time the invention of the present application was made, commonly owned by Cisco Technology, Inc.

This common ownership statement disqualifies Berg as a reference under 35 U.S.C. § 103(a). See MPEP § 706.02(l)(1)-(3).